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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/607,926

06/27/2003

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12/28/2005

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EXAMINER

WONG, ERIC K

ART UNIT

PAPER NUMBER

2883

DATE MAILED: 12/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/607,926

Applicant(s)

SHOU, NATHAN L.

Examiner

Eric Wong

Art Unit

2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments, filed 10/11/05, with respect to the rejection(s) of claim(s) 1 under Pan et al. have been fully considered and are persuasive. Applicant argues that the prior art provides no motivation to rearrange parts. Similar arguments are made with respect to claims 9 and 16. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of United States Patent Number 5,727,109 to Pan et al. Pan et al. does disclose motivation for rearranging a retardation plate.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 4, 9-10, 13 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent Number 5,727,109 to Pan et al.

As to claims 1, 4, 9-10, 13, and 22, Pan et al. discloses in figures 5A-5C an optical isolator having an input and output, the optical isolator comprising:

- A phase retardation plate (half wave plate) positioned at the input; and
- An optical Faraday rotator positioned between the phase retardation plate (112) and the output, the isolator comprising a Faraday rotator (118) positioned between a first (116) and second (122) polarizer.

In figures 5A-5C, Pan et al. discloses the rearrangement of a compensation plate.

As to claims 4 and 22, figure 5C discloses the plate at an angle.

However, Pan et al. fails to explicitly disclose that the phase retardation plate is the first polarization-modifying component encountered by the optical signal.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to place a phase retardation plate as the first component of an optical isolator, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70. Examiner's contention of this obvious choice in design can be overcome if applicant establishes unexpected results by arranging the components in the location as claimed.

3. Claims 5-6, 14-15, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pan et al. as applied to claim 1 above, and further in view of applicant's disclosure of prior art.

Pan et al. discloses an optical isolator but fails to explicitly disclose the use of polarization maintaining fibers at the input and output. It is respectfully noted that polarization maintaining fibers (PMF) are commonly used in the optical communication art for preventing back reflections to an optical source.

Applicant's disclosure of prior art goes into further detail of how such PMFs work in figure 1B and paragraphs 17 and 18.

Since Pan et al. and Applicant's prior art are both from the same field of endeavor, the purpose disclosed by applicant would have been recognized in the pertinent art of Pan et al.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the PMF disclosed in applicant's disclosure of prior art in Pan et al. in

order to reduce optical transmission errors by reducing the amount of light reflected back to the source.

4. Claims 2, 11 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pan et al. as applied to claim 1 above.

Pan et al. discloses an optical isolator that uses a Faraday rotator but fails to explicitly disclose the use of a second Faraday rotator.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to add a second Faraday rotator, in order to properly adjust the polarization of the signal for its intended use and since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

5. Claims 7-8, 16, and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pan et al. as applied to claim 1 above, and further in view of applicant's disclosure of prior art.

Pan et al. discloses an optical isolator with optical input ports that receive optical signals, but fails to explicitly disclose the use of a tunable optical laser input. It is respectfully noted that tunable lasers are commonly used in the art to generate optimal optical signals in an optical communications system.

Applicant's disclosure of prior art includes such tunable optical lasers of a typical optical communications system in figure 1A (102).

Since Pan et al. and Applicant's prior art are both from the same field of endeavor, the purpose disclosed by applicant would have been recognized in the pertinent art of Pan et al.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to recognize that the inputs of the optical isolator disclosed by Pan et al. would receive signal light from a source such as a tunable laser in order to properly transmit signals with minimal errors and losses and to select wavelengths and frequencies for its intended use.

6. Claims 3, 12, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pan et al. as applied to claims above, and further in view of United States Patent Number 6,178,044 to Li et al.

Pan et al. discloses an optical isolator with a compensation plate in order to minimize errors, but fails to explicitly disclose the use of a half-wave plate.

Li et al. discloses the use of a half-wave plate in order to reduce errors.

Since Pan et al. and Li et al. are both from the same field of endeavor, the purpose disclosed by applicant would have been recognized in the pertinent art of Pan et al.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a half-wave plate configuration as disclosed by Li et al. in the compensation plate of Pan et al. for the motivation of reducing errors and polarization.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Wong whose telephone number is 571-272-2363. The examiner can normally be reached on Monday through Friday, 830AM - 430PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on 571-272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



EW

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PRIMARY EXAMINER  
12/27/05